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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,654	11/14/2000	Ramesh Gupta	ECB-0010	4644

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EXAMINER

RIDLEY, BASIA ANNA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 12/17/2002

11-

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/712,654

Applicant(s)

GUPTA ET AL.

Examiner

Basia Ridley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim(s) 9-11 is/are objected to because of the following informalities:

✓ - claim(s) 9 recite(s) "said fixed bed", line 13, and "said fixed bed of catalytic material", lines 20, 21, 23 and 24, for claim language consistency, it is suggested to replace all said recitations with --said fixed catalyst bed--.

Appropriate correction is required. Applicant is reminded that no new matter shall be added.

Claim Rejections - 35 USC § 112

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim(s) 9-12 and 14-20 is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant(s) regard(s) as the invention.

✓ Claim(s) 9 recite(s) the limitation(s) "the operating life", line(s) 1 and "the velocity", line(s) 18. There is insufficient antecedent basis for said limitation(s) in the claim(s).

✓ Claim(s) 9 recite(s) the limitation(s) "having a top and a bottom layer", line(s) 2. Said recitation renders said claim indefinite. It is not clear if recited fixed catalyst bed comprises a top and only one layer (i.e. a bottom layer) or if said fixed catalyst bed comprises two layers (i.e. a top layer and a bottom layer). Suggested correction is --having a top layer and a bottom layer--.

✓ Claim(s) 10 recite(s) the limitation(s) "said hydrocarbon feed". There is insufficient antecedent basis for said limitation(s) in the claim(s).

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✓ Claim(s) 12 recite(s) the limitation(s) "said fixed bed", line 12, "the velocity", line 19, and "the bottom unfouled layer", line 23. There is insufficient antecedent basis for said limitation(s) in the claim(s).

✓ In claim 12, line(s) 17 and 18, --member-- should be inserted after "cage" for clarity and consistency.

✓ Claim(s) 18 recite(s) the limitation(s) "said separation device". There is insufficient antecedent basis for said limitation(s) in the claim(s).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim(s) 9-12 and 14-20 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Beal et al. (USP 3,607,000) in view of Gupta (USP 4,313,908).

Regarding claim(s) 9, 12 and 16, Beal et al. disclose(s) a similar method for extending operating life of a fixed bed reactor comprising:

- (a) placing a bypass apparatus (Fig. 7) within at least one fixed catalyst bed in substantial alignment with flow of feedstock;
- said bypass apparatus comprising a cage member (84) comprising a first elongated hollow member having a top wall, side walls and a bottom wall, said cage member (84) having openings therein; and
- a second hollow elongated member (72) for bypassing an increasing amount of said feedstock through said second hollow elongated member (72) into said cage member (84) as top layer of said at least one fixed bed fouls to create a bypass flow, said second hollow elongated member (72)

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being disposed within said cage member (84) and protruding through said top wall of said cage member (84) and wherein said second hollow elongated member (72) extends above said at least one fixed catalyst bed through said cage member (84), said second hollow elongated member (72) being sized to regulate said bypass flow, said cage member (84) having a substantially larger cross-section than said second hollow elongated member (72) to effectively reduce the velocity of said bypass flow as it exits said cage member (84) into said bottom layer of said at least one fixed catalyst bed;

- (b) introducing said feedstock into said at least one fixed bed of catalytic material, wherein a majority of said feedstock will flow through said top layer of said at least one fixed bed of catalytic material (C13/L31-C16/L13); and
- (c) as said top layer of said at least one fixed bed of catalytic material fouls, bypassing said increasing amount of said feedstock to said bottom layer of said at least one fixed bed of catalytic material (C13/L31-C16/L13).

Beal et al. does not explicitly disclose the method wherein said second hollow elongated member is continuously opened to said bypass flow, nor does he disclose specific pressure drop for said member.

Gupta teaches a reactor comprising bypass apparatus, wherein said bypass apparatus comprises second hollow elongated member, and wherein:

- said second hollow elongated member, wherein said second hollow elongated member is continuously opened to said bypass flow and has a pressure drop of about 5 to about 50 times greater than that of said top layer of said catalyst bed when said catalyst bed is a fresh catalyst bed (C3/L47-C4/L13).

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Said reactor is an improvement of a reactor comprising bypass apparatus, wherein said bypass apparatus comprises a rupture disk. It allows for a low pressure drop bypass and several fold increase in on-time of the reactor, and at the same time increases system reliability over bypass systems comprising a rupture disk (C1/L45-59).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace second hollow elongated member comprising a rupture disk in reactor of Beal et al., with a second hollow elongated member having a pressure drop of about 5 to about 50 times greater than that of top layer of said catalyst bed when said catalyst bed is a fresh catalyst bed as taught by Gupta, for the purpose of providing a low pressure drop bypass and several fold increase in on-time of the reactor, and increasing system reliability.

Regarding claim(s) 10-11 and 17-20, Beal et al. in view of Gupta ~~et al.~~ disclose(s) all of the claim limitations as set forth above, additionally Beal et al. discloses the method for operating a fixed bed reactor, wherein:

- said feedstock is selected from the group consisting of liquid feed, vapor feed and mixtures thereof (C1/L2-6);
- said feedstock is selected from the group consisting of hydrocarbon feedstocks, chemical feedstocks, and mixtures thereof (C1/L2-6);
- the bypass apparatus (Fig. 7) further comprises a separation device (76) disposed above said second hollow elongated member (72);
- said separation device (76) is selected from the group consisting of caps, centrifugal separators and cyclones (Fig. 7);

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- said fixed catalyst bed contains packing material for distributing particulates passing through said bypass apparatus (Fig. 7); and
- said packing material is selected from the group consisting of catalyst particles, alumina balls, inert particles, inert packing and mixtures thereof (Fig. 7).

Regarding claim(s) 14-15, Beal et al. in view of Gupta ~~et al.~~ disclose(s) all of the claim limitations as set forth above, but does not recited explicitly the specific diameters of the first and second members.

The specific diameters of the members are not considered to confer patentability to the claims. The precise diameters of the members would have been considered a result effective variable by one of ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed diameters of the members cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have routinely optimized the diameters of the members in the apparatus of Beal et al. to obtain desired bypassing of the top layer of the fixed catalyst bed (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

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made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

7. Applicant's arguments filed on 29 October 2002 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. In view of the foregoing, none of the claims are allowed.

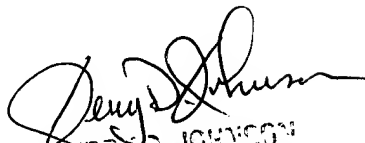
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (703) 308-6824.

The fax phone number for Group 1700 is (703) 872-9311 (for Official papers after Final), (703) 872-9310 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley
Examiner
Art Unit 1764


JERRY D. JOHNSON
PRIMARY EXAMINER
GROUP 1700

BR
December 14, 2002